
C2PC within the Marine Corps and Joint Community: Present and Future Plans

**C2PC Users Conference
3-5 Feb 2004**

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Purpose/Agenda

- **Purpose:**

- **Provide an overview on the status and future direction of C2PC within the Marine Corps and Joint Community.**
- **Provide a backdrop for the more detailed presentations to follow.**

- **Agenda**

- **C4I Architecture Overview**
- **C2PC Overview**
- **Future Direction**
 - Data Integration and Linking
 - Joint Use within GCCS-Family of Systems
 - Migration of Army Maneuver Control System to C2PC
 - WEEMC and Fires Efforts
 - Major Functions (COP Mgt, Comms, etc.)
- **Points of Contact**

C2PC Overview

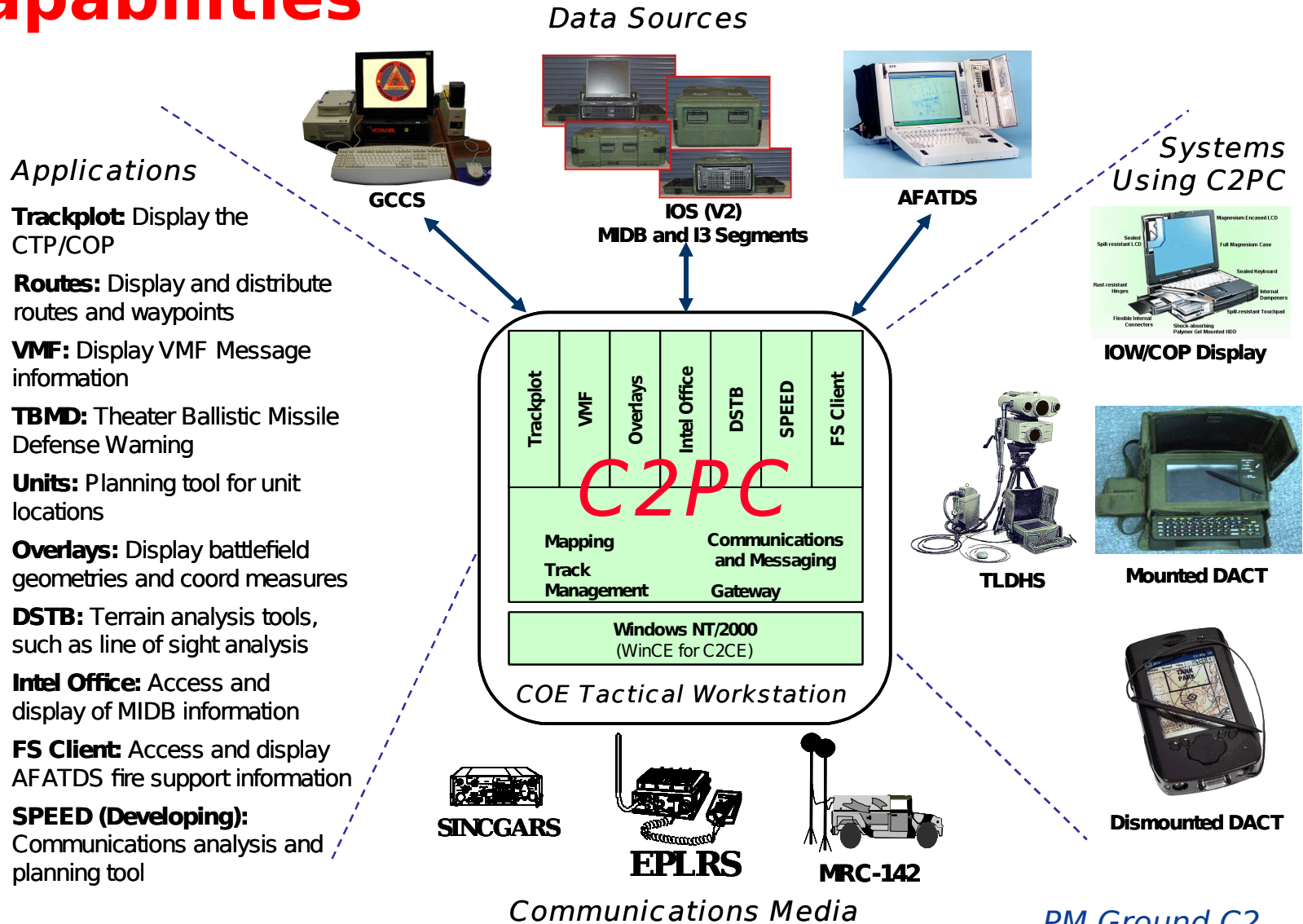
- **Command and Control Personal Computer (C2PC) is a Windows-based C2 applications and software foundation that provides:**
 - **A COP display and management tool that can work with GCCS-based systems, (Supporting being developed for GCCS 4.x)**
 - **A Blue Force Situational Awareness tool that:**
 - ***Generates and Disseminates*** automated PLI updates
 - **Can stand alone** and work in a low-bandwidth, unreliable communications environment
 - **Works with various tactical radios**, such as EPLRS and SINCGARS, and bridges those different networks and passes BFSA information between GCCS and PDA/dismounted devices, such as C2CE
 - **A software foundation for other BFSA applications**
 - Various Software Development Kits (SDKs) for an open development environment
 - Current SDKs: TMS, GPS, ATLAS (Mapping)
 - Upcoming SDKs: Comms, Address Book, Overlays, Alerts, Gateway Plug-ins
 - C2PC applications exist for TBMD, Fire Support (AFATDS client), Intelligence (MIDB client), tactical communications planning (SPEED), and others.

Joint Tactical COP Workstation

- **Named the Joint Tactical COP Workstation**
 - **FIOP (Family of Interoperable Operating Pictures) sponsored - JROC Effort**
 - **Unanimous Service, DISA and JFCOM support**
 - **Marine Corps is Executive Agent for DISA (MOA signed)**
 - Two clients/Workstations within the COE - ICSF COP Client and C2PC
 - USMC responsible for life cycle support
 - USMC will provide both InstallShield and COE Segmented Versions
 - DISA COE Office will distribute via DADS
- **Joint CCB established**
 - **Reviews, Approves, and Prioritizes New Requirements**
 - **Meets Quarterly**
 - **Members: All Services, Coast Guard, DISA, and SOCOM**
- **Developer IPT and User Conference Forums Established**
- **First version will be C2PC 5.9.0.3 P4, fielding August 2003**
- **C2PC Website: <https://tacmobile.spawar.navy.mil/C2PC>**

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C2PC-Based Systems: General Capabilities



C2CE - BFSA Software for Handhelds



- Similar to C2PC - Complements C2PC to provide an SA picture and tactical comms to handheld users
- Runs on handheld CE/PocketPC devices
- BFSA Picture
 - Interfaces and synchronizes with C2PC Gateway - unit, platform, link, emitter and acoustic track types
 - Generates, disseminates and displays VMF PLI
 - GPS interface support - NMEA 0183 and ICD 153
 - Subset of MIL-STD-2525 icons and tactical graphics
 - Auto-centering on own track - 4 sec GPS update

• Maps

- Native CADRG support
- Basic map tools - pan, zoom, range/bearing, etc.

Overlays

• Routes

• VMF Messages

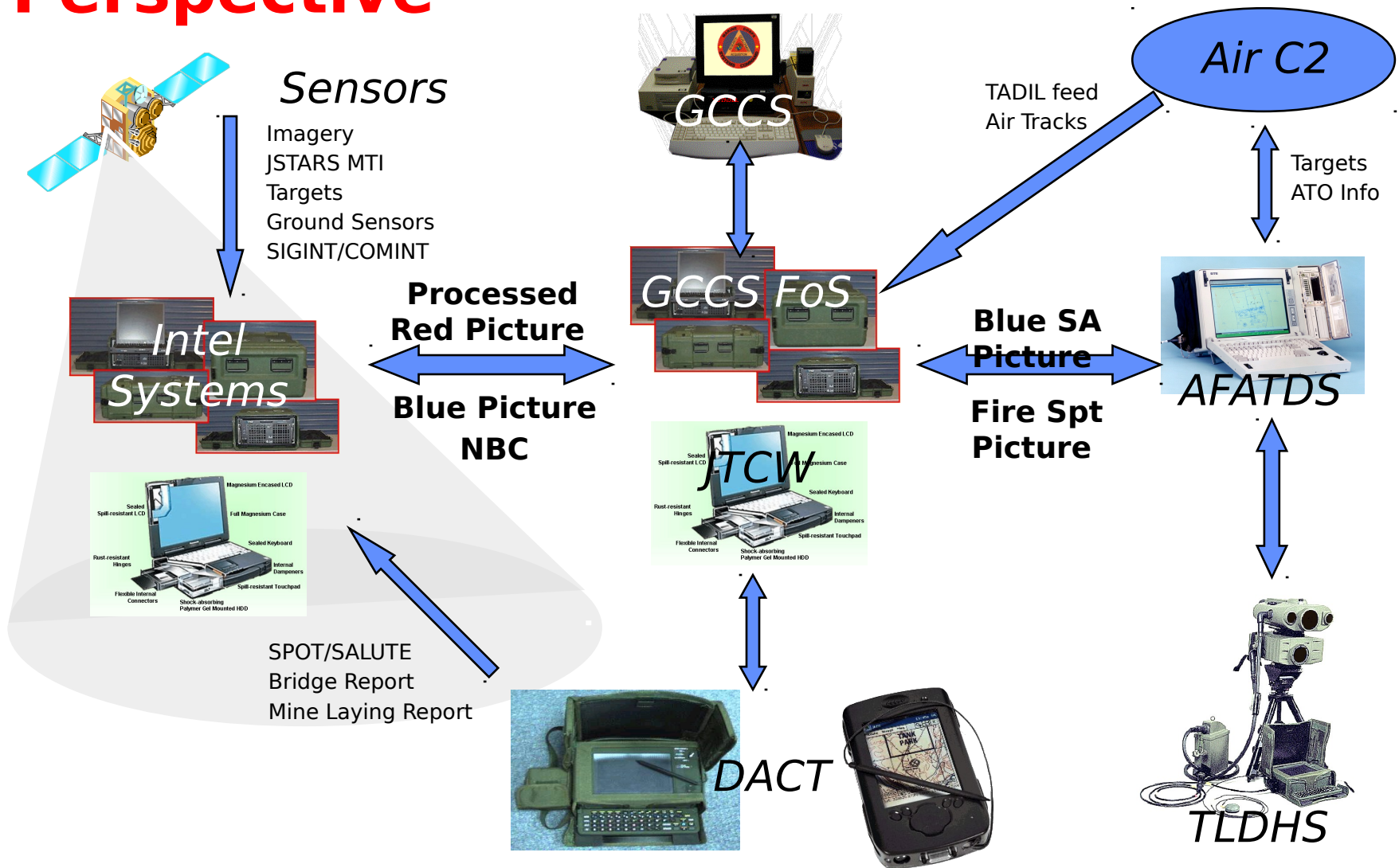
- VMF Header Segmentation/Reassembly (S/R) for more reliable communication over SINGARS
- Native VMF Message GUI and Parsing

• Planned Improvements

- L-Band SATCOM Interface (OTH Communications)
- Added VMF messages
- Increased MIL-STD-2525 Tactical Graphics Support

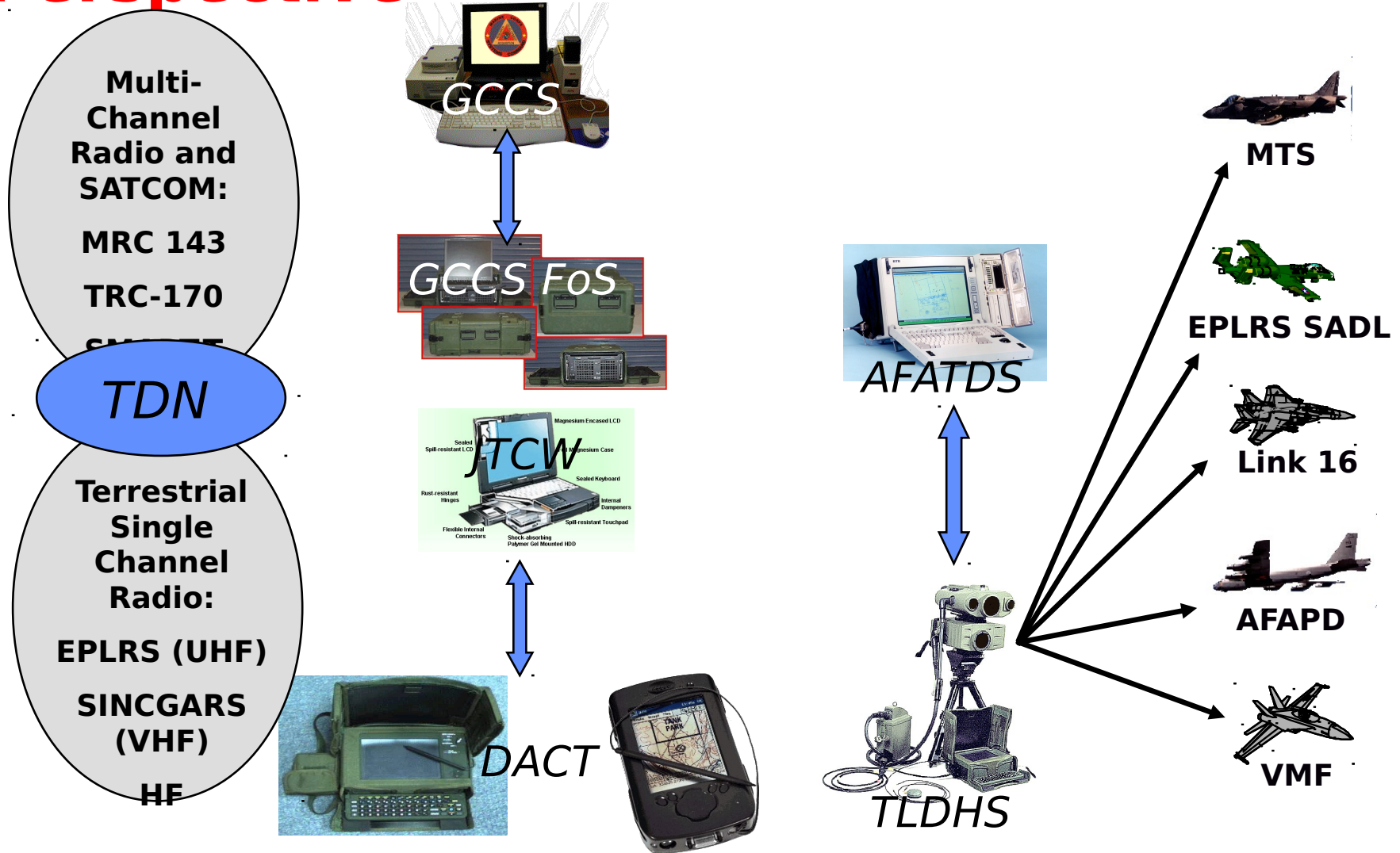
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The Current "Big Picture" - System Perspective



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The Current "Big Picture" - Comms Perspective

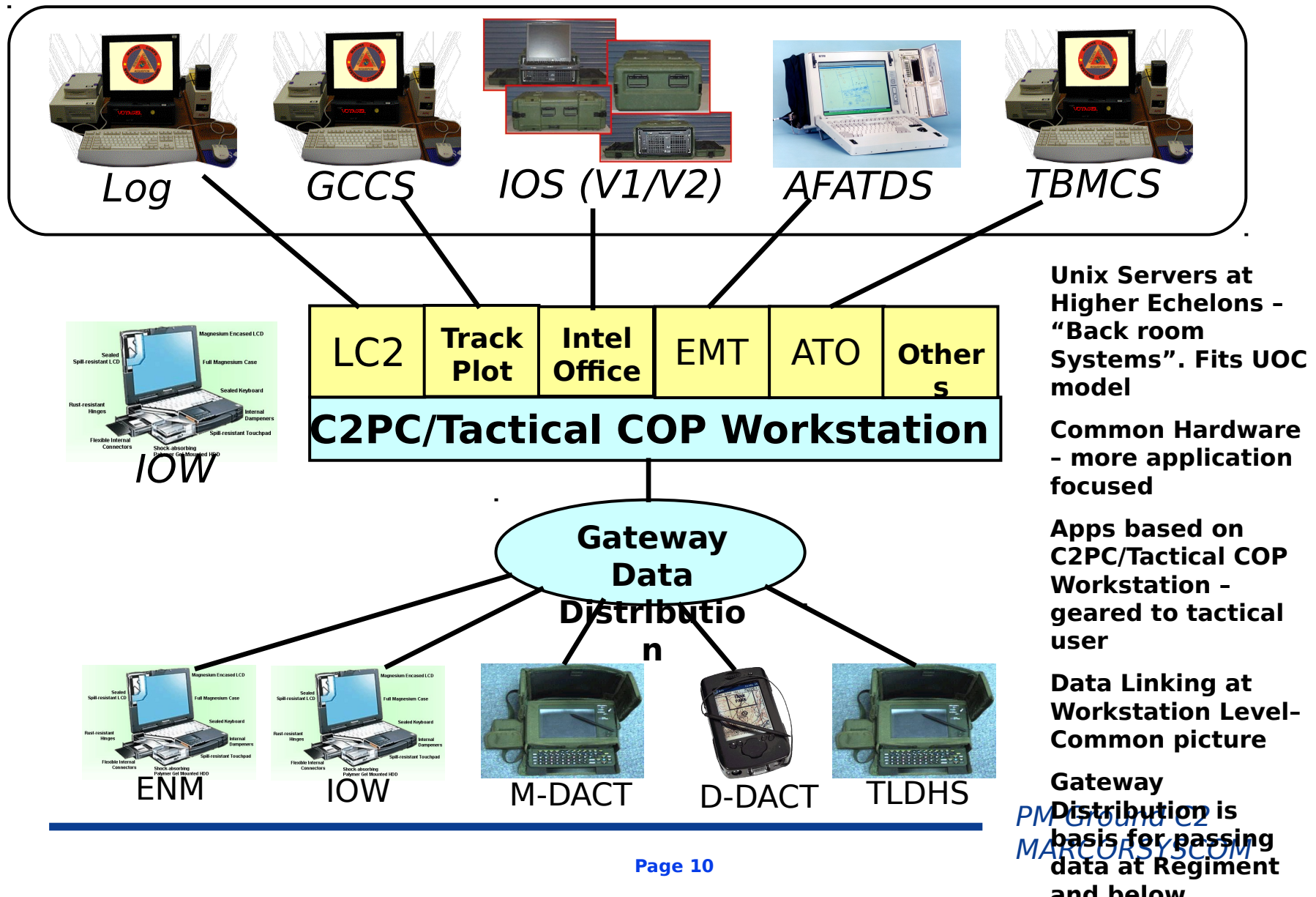


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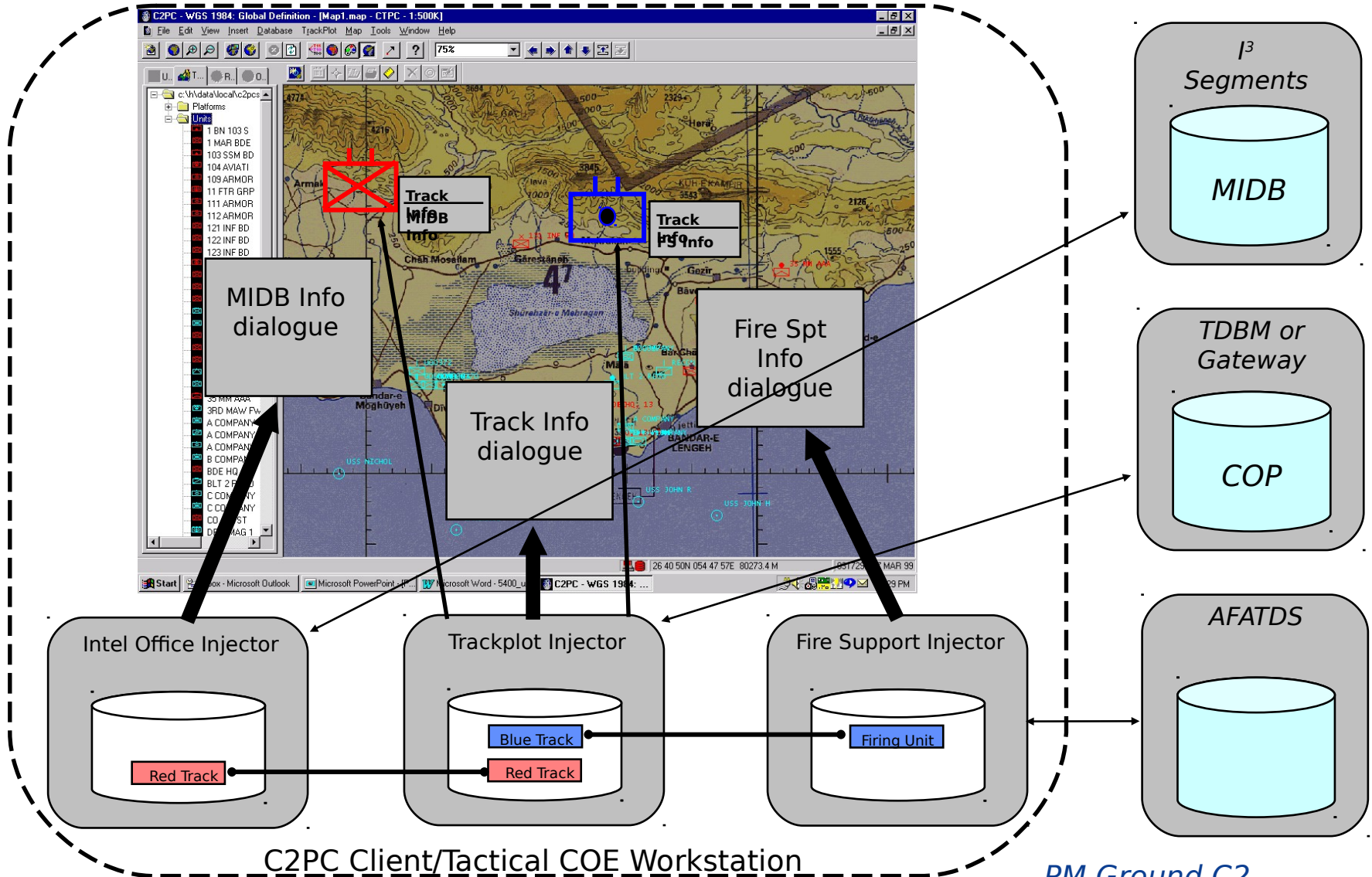
Current Status - C2PC 5.9

- **First version to have both COP interface with GCCS (tracks/overlays) and VMF Blue PLI capability**
- **Fieldings:**
 - **Early versions fielded by GCCS-J and TBMCS. Version control issues.**
 - **Marine Corps - starting to field now for OIF II and MEU deployments after long System of Systems Test (SoST) at MCTSSA**
 - **Fielding Patches - C2PC and DISA websites (Tacmobile and DADS). GET PATCH 6!**
- **New Capabilities**
 - **Improved track management, data subscription and filtering.**
 - Using comms bandwidth more efficiently, and decreasing unwanted information
 - **Blue SA using VMF position reports - efficient use of comms and interaction with the COP**
 - **More efficient comms support for blue SA and messaging (multicast, VMF and USMTF support)**
 - **SHAPE Map file support - needed for map updates and intel functions**
- **Issues**
 - **Missed most of OIF I - limited user feedback, especially for DACT functions**
 - **Did not include L-Band BLOS Comms support. Could not support OIF I tempo.**
 - **Training requirements are high - SoS configuration important**

Future Software/Systems Direction



Conceptual Trackplot Data Linking



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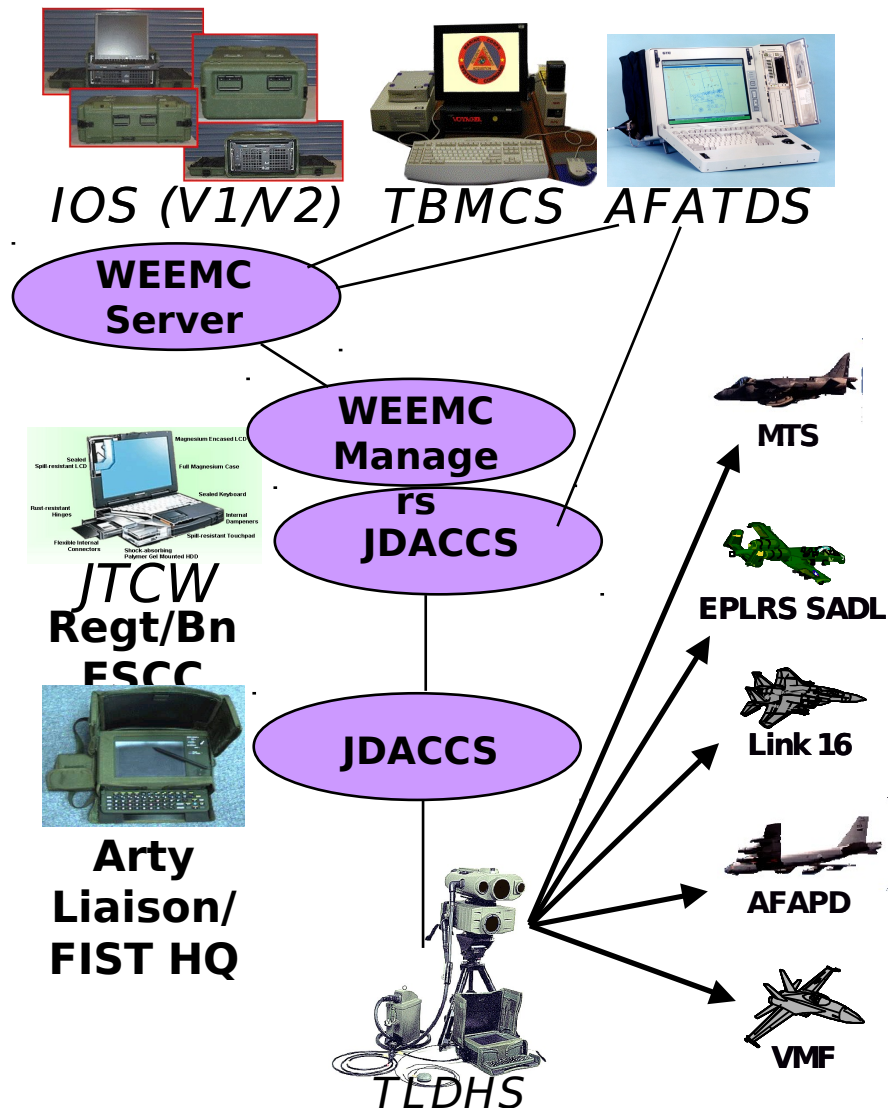
Future Joint Use

- **Being used in most services' GCCS-based Systems**
 - **Army and Marine Corps - Primary Workstation/Client**
 - **Air Force - Use in TBMCS, AOCs and ASOCs**
 - **Navy - Mix of C2PC and ICSF Cop Clients. GCCS-M 3.x presence and need for C2PC well into FY08**
 - **GCCS-J - Support of C2PC Gateway - allow clients to connect**
- **Coexistence of ICSF COP Client (operational level) and C2PC (Tactical level) during GCCS 4.x timeframe (04-09?)**
 - **Users will choose which client/workstation they need or prefer**
 - **C2PC ICSF Interoperability Layer (CIIL) - Use of selected ICSF apps on C2PC (e.g. Intel Shop, ATOX for ATO graphical display)**
- **GCCS FoS moving to new concept - Joint C2 (JC2) (FY06-08)**
 - **Focus moves to providing web services, not visualization**
 - ICSF COP Client becomes legacy application
 - **Two main clients (based on CJMTK)**
 - Thin-Client - web-based
 - Heavy Client - Positioning C2PC for this role with the move to CJMTK mapping

Army MCS Migration to C2PC

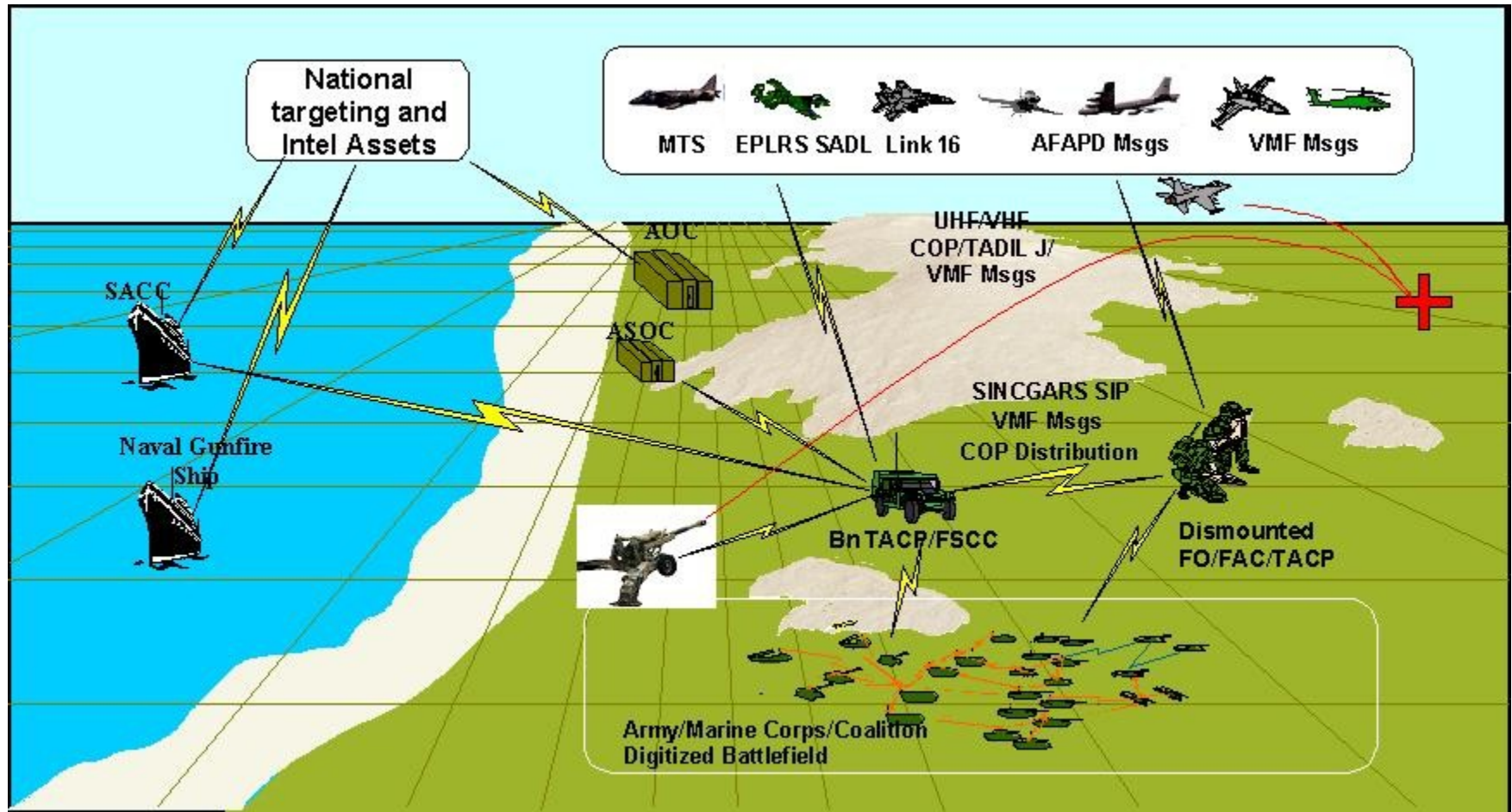
- **Maneuver Control System (MCS) - Army's primary system for C2 from Battalion to Division**
- **MCS Migrating to C2PC Infrastructure by C2PC 7.0 - FY06 fielding**
 - **Increase core C2PC interoperability with Army systems and fulfill MCS requirements (targeting C2PC 6.1)**
 - FBCB2 - Ground SA Picture
 - TAIS - Air Space Integration
 - ASAS - Intelligence
 - AMDWS - Air Defense
 - AFATDS - Continued development of AFATDS Client
 - Terrain Analysis - Pull DSTB Injector into core C2PC baseline
 - **Army-developed Injectors (by C2PC 7.0)**
 - MIP - Coalition Interface (Multilateral Interoperability Program)
 - JWARN - NBC Warning and Reporting
 - Mission Planning, Execution, and Rehearsal
- **Approved at the 3-star level**
 - **Preparing to brief Joint Requirements Oversight Council (JROC)**

Future Fires



- C2PC-based tools for operations across tactical echelons and agencies
- Combination of COP/CTP, Fires and Air pictures
- FIOP products - Joint by design
- ADOCS-Like Mission Managers on C2PC
 - Time Sensitive Targets
 - Fires
 - Joint CAS
 - Etc...
- AFATDS-derived FSC Windows Workstation - Joint Dynamic Attack C2 System (JDACCS)
- Common FO/FAC/TACP precision targeting and fire control application
 - Forward Observers
 - Marine and Air Force FAC/TACP

Future Precision Fire Support



C2PC 6.0 COP Management

Continued 3.x TDBM Support:

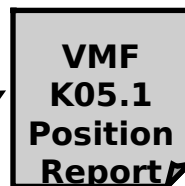
Support multi-year transition from 3.x to 4.x based systems. Alternate GW support increased to 10 possible, DNS capable for more flexible admin.



3.x TDBM



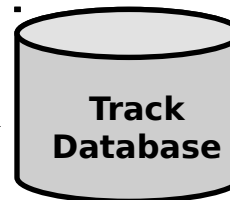
4.x TMS



Create a track from VMF PosRep (& vice versa):

Greater exchange of SA between ground units and

COP



4.x TMS Interface:

Ready for next generation of GCCS. Increased 4.x track type support. Can switch between 3.x and 4.x servers as needed. Alternate GW and server selection, DNS capable for more flex. admin.

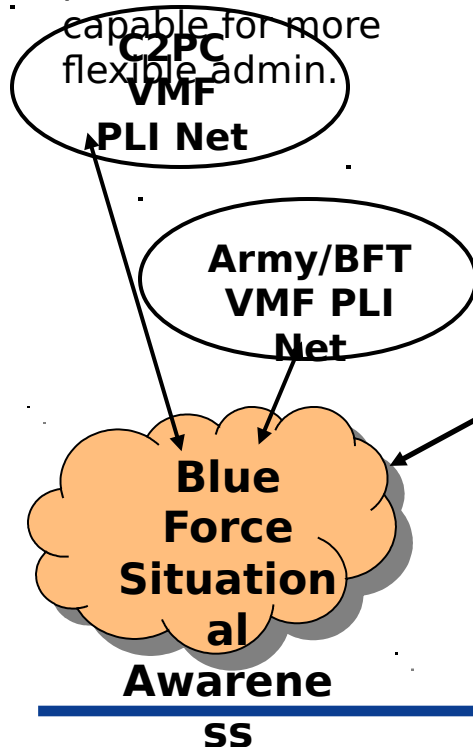
5.9.0.3 P4 – 4.x TMS interface for existing 3.x track types

Overlay Support:

6.0 – Full 4.x track support. Exchange overlays in 3.x, 4.x XML, and VMF formats. Increased MIL-STD-2525B support for more operational expression.

New User Permissions:

2 more permission levels (4 total) for greater COP picture protection.



COP Management (Planning & User Interface)

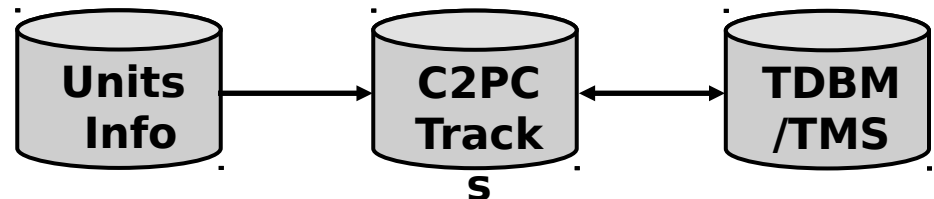
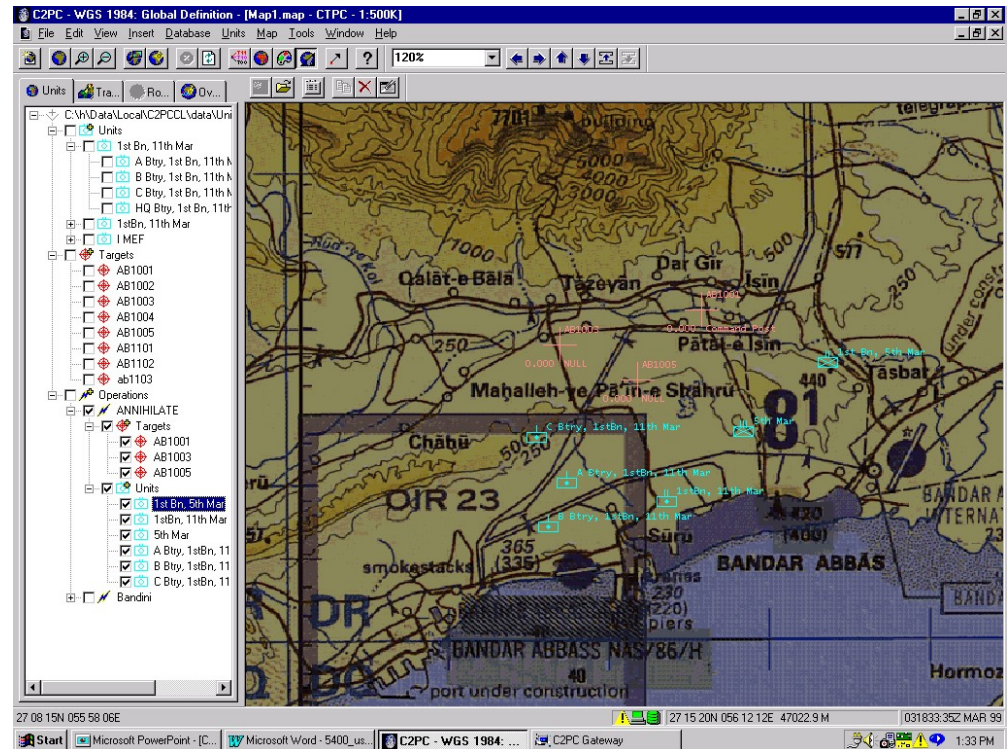
Track Hierarchy: Manage/view trackplot tracks hierarchically, based on unit task organization. Easier to find and display/hide groups of tracks. Interface consistent with Units Planning injector.

Track Group Persistence (5.9.0.3 P4)

Data Linking: Link info from various systems to COP tracks

Role-Based Login and Profile Management: Starts processes, injectors, command profiles, etc. based on a user's profile.

Unit Injector "Promote to COP": Can take planning unit list and locations and move them into the track database. Eases the creation of a COP picture at the start of an operation.



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Communications (Protocol Support)

BFT Interface: Provide BFT SATCOM interface to exchange

Blue SA
AFAPD: Support CAS communications for TLDHS Forward Observer (FO)/Forward Air Controller (FAC) program to Air Force aircraft

MTS: Support CAS communications for FO/FAC programs to Marine Corps AV-8B

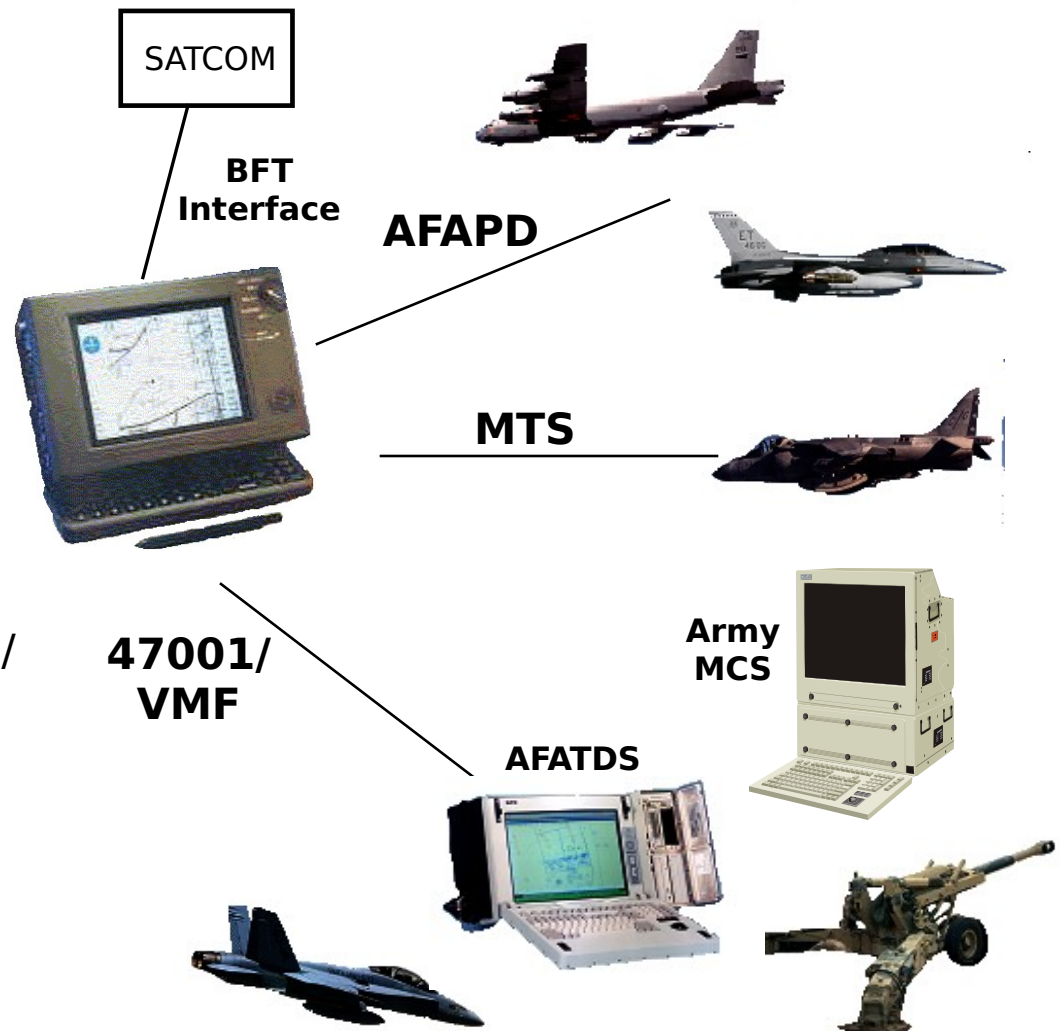
47001/VMF:

Support FO and CAS communications to Marine Corps/ Navy F/A-18 and Artillery (AFATDS)

Enables Army/USMC Ground Picture exchange

Improvements to message management, operator acknowledgement, and other C2 enhancements

Comms SDK for other systems to gain access to this capability.



Communications (Net Mgt and Access)

Multicast Group Management:

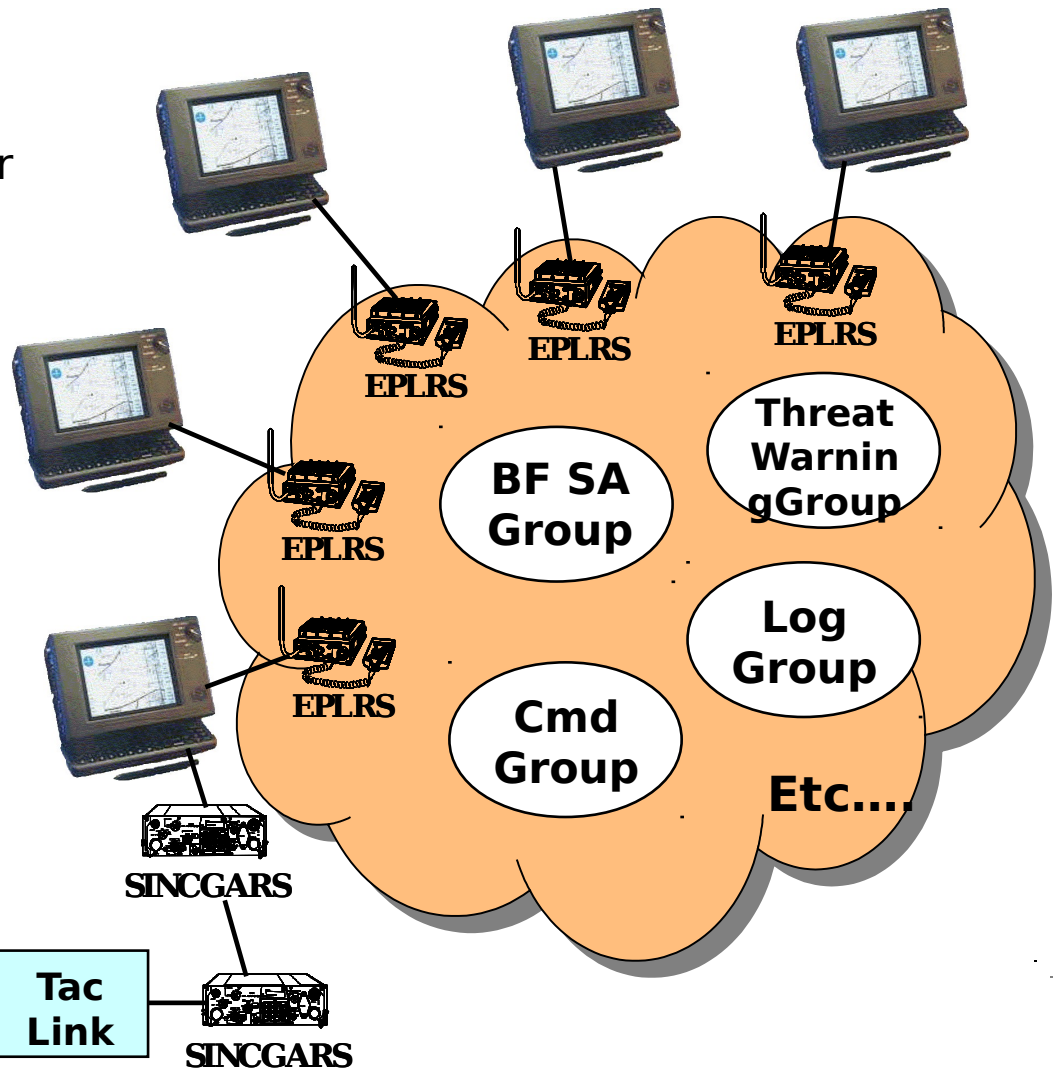
Creates a user interface to join or leave a multicast group.

Approximates current functional nets. Lets the network do the work of getting the right info to the right people.

Lets SINCGARS users also join groups by providing a proxy service.

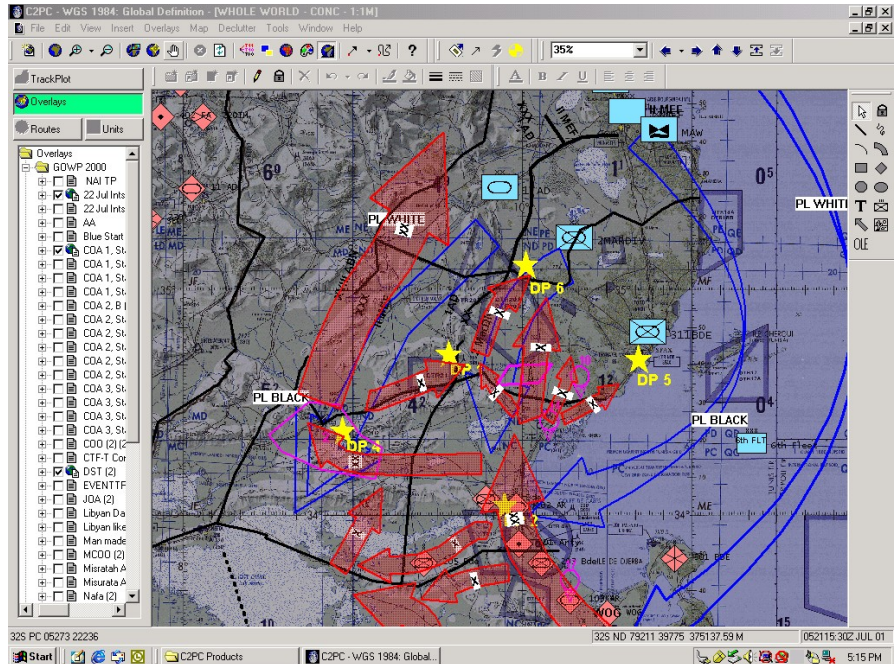
TacLink Support over LAN:

Supports C2 and fire support communications from ship to shore. C2PC users can access radios via the shipboard LAN.



VMF Injector Improvements (Tactical SA)

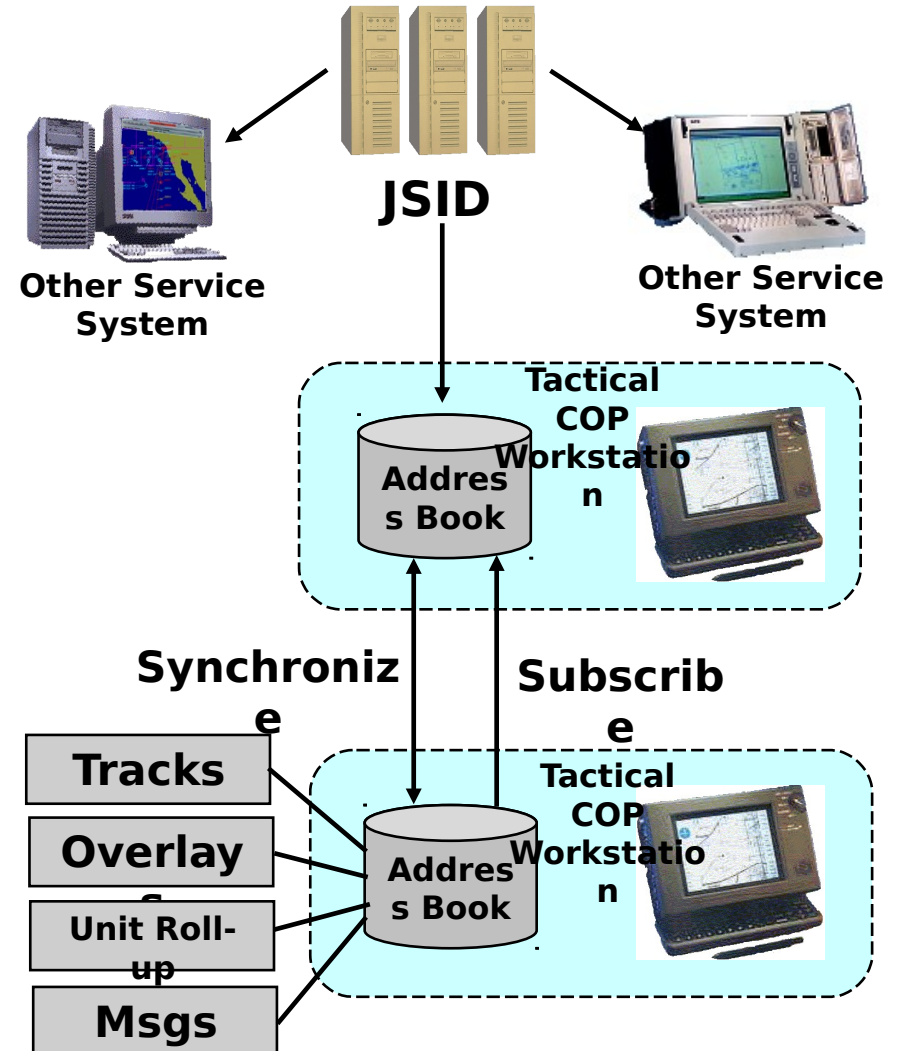
- **MIL-STD-2525B Symbology Support**
 - **MOOTW Symbology**
 - **Tactical Graphics**
- **VMF Message Wizard Improvements**
- **VMF Message Automation and Display**
 - **K05.1 Position Report to Track Conversion**
 - **K05.19 Entity Data Msg**
 - FBCB2/Army Ground Picture Interoperability
 - Includes bridge and obstacle reports
 - **K04.13 Basic Weather Report**
 - **K05.2-7 NBC Reports**
 - **K05.15 Field Orders Automation**
 - Update Address Book Information on UTO automatically from K05.15



VMF Injector Improvements (Cont)

• Address Book

- **Critical to Blue Force SA**
- **Database-centric Address Book**
 - More scalable - handle thousands of entries
 - Incorporated throughout C2PC user interface. Automatic filling of track data, overlay icons, message addressees, etc.
- **Interface with JSID (Joint System Initialization Database)**
 - Address information of the Joint community available in JSID. Supports Joint interoperability and Blue Force SA.
 - Import/Export unit/URN info
- **Address Book Population**
 - Entire Marine Corps Address Book, all units and billets down to fire team
 - Less work to prepare for operations
- **Address Book Synchronization**
 - Synchronize address book changes like track changes
 - Can subscribe for part of address book
- **K01.2 URN Query Message**
 - Automatic system discovery of unknown URN information
 - Automatic update of Address Book



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